REMARKS

Claims 2-13, 15-38, 40-49, 81-106, and 119-141 are currently pending in this application. Claims 2, 24, 26, 27, 81, 85, 86, and 94 have been amended to address typographical and stylistic issues and/or to more particularly point out and distinctly claim applicants' invention. Claims 14, 39, 50-80, and 107-118 have been canceled. New claims 119-141 have been added. No new matter has been introduced by way of these amendments.

As a preliminary matter, applicants wish to note that several of the claims recite language that under case law is intended to state two or more choices in the alternative. This note and related amendments are intended to clarify that the previously recited language is not to be interpreted solely in the conjunctive. Thus applicants have amended claim 24 to substitute the disjunctive "or" for "and" before the last element in each alternative list so that the claim covers any one or more of the listed elements in the alternative. Namely, the phrase "at least one of A or B" is to be interpreted as including: "A," or "B," or both "A and B." Also, the phrases "at least one of A, B, or C," "A, B, or C," "A or B," and "A and/or B" are to be interpreted in the same manner. These amendments and recitations conform the claims with current case law on this subject.

Information Disclosure Statement filed September 3, 2003

As a preliminary matter, applicants note that it appears that the Examiner did not initial Reference AP on the Form PTO-1449 filed on September 3, 2003. Applicants kindly request the Examiner to initial this reference on the enclosed copy of originally filed Form PTO-1449 and return an initialed copy to applicants with the Examiner's next response.

35 U.S.C. § 112 Rejection

The Examiner has rejected claim 81 under 35 U.S.C. § 112 as being indefinite because "it is unclear how a prepositional phrase can contain a verb." [Office Action, dated July 19, 2005, page 2, hereinafter "Office Action."] Applicants have corrected the typographical error in claim 81, and claim 81 now properly recites "verb modifiers of prepositional phrases that

relate to the governing verb" (emphasis added). Accordingly, applicants respectfully request the Examiner to withdraw the rejection under 35 U.S.C. § 112.

35 U.S.C. § 102 and 103 Rejections under Govrin

The Examiner has rejected claims 2, 13-24, 26, 27, 38-48, 50-54, 56-66, 68-80, 89, 93 and 94 under 35 U.S.C. § 102(e) as being anticipated by Govrin et al. ("Govrin"), U.S. Patent Publication No. 2003/0101182A1. The Examiner has also rejected claims 3-12, 25, 28-37, 49, 55, 67, and 90-92 under 35 U.S.C. § 103(a) as being obvious over Govrin.

Applicants respectfully traverse these rejections with respect to both the original and amended claims as indicated. Specifically, each of applicants' independent claims recite aspects that are nowhere present in Govrin. Although several of the independent claims (namely claims 2, 26, 27, 81, 85, and 86) have been amended, applicants believe that these claims prior to amendment included acts or elements not taught, suggested or motivated by Govrin. As a preliminary matter, applicants note that claims 14, 39, 50-80, and 107-118 are canceled in this response amendment, thereby rendering moot all rejections as to these claims. Thus, applicants will address the Examiner's rejections as to the remaining claims 2-13, 15-38, 40-49, and 89-106 vis a vis Govrin.

Specifically, each of applicants' claims, before and after amendment, recite that a grammatical role and an additional grammatical role are associated with the at least one meaningful term. For example, independent claims 2 and 26, before and after amendment, recite "determining ... a grammatical role for each meaningful term" and "determining an additional grammatical role for at least one of the meaningful terms." Independent claim 27 recites "determine ... a grammatical role for each meaningful term" and "determine an additional grammatical role for at least one of the meaningful terms." Thus, claims 2-13, 15-38, 40-49, and 95-106 (at least by virtue of their dependencies) recite that at least one term is associated with at least two grammatical roles.

Applicants' claims 2, 26, and 27, as amended, further recite that the (first) grammatical role "is at least one of a subject, object, verb, part of a prepositional phrase, noun modifier, or verb modifier" and that "the additional grammatical role indicates that the at least

one of the meaningful terms is a subject or an objection *in addition* to the grammatical role determined from the parse structure" (emphasis added). Thus, the at least one of the meaningful terms is associated with two different grammatical roles.

With respect to Govrin, the Examiner appears to indicate that Govrin's syntactical *category* combined with a syntactical *role* teaches the "grammatical role" and "additional grammatical role" recited in applicants' claims. [See Office Action, p.3, references to paragraphs 38 and 40 of Govrin.] Specifically, the Examiner compares Govrin's assigning an index code to a word based upon a "syntactical category" (*e.g.*, index code "N437" to represent a noun meaning the word "balcony") and assigning a second index code to a word based upon a "syntactical role" (*e.g.*, the "1" index code in "1N437" to indicate that the word "balcony" appears in a main subject role in the sentence) to applicants' recited "grammatical role" and "additional grammatical role," respectively, that are associated with at least one meaningful term. However, the Examiner's assertion regarding Govrin yields an incorrect interpretation of Govrin. A "syntactical category" is specifically defined in Govrin as a part-of-speech and is explicitly <u>NOT</u> the same as a grammatical role when it states: "[a]t the next step (103), the word is classified according to its syntactical category (*parts of speech*) namely: noun, adjective, verb, adverb, etc." [Govrin, page 3, para. 38 (emphasis added).] Rather, according to Govrin a "syntactical *role* ... is assigned according to basic syntactic rules (subject, predicate, purpose of subject, location of object, etc." [Govrin, pg. 3, para. 40 (emphasis added).] Thus, consistent with standard usage in the art, Govrin clearly distinguishes grammatical (sometimes referred to as syntactic or syntactical) roles, which relate to a word's functionality in the context of the text in which it appears – from its classification as a 'part of speech.' Accordingly, the Examiner cannot legitimately compare Govrin's syntactical category to a grammatical role and then compare a syntactical role to an additional grammatical role without contradicting the plain meaning expressed in the Govrin reference.

Accordingly, there is nothing in Govrin to teach, suggest, or motivate any assignment of an index or any code associating more than one syntactical role with a (single) word. At most, Govrin describes associating a part of speech with a word and then associating a word's functional role in the sentence (like a main subject) with the word. There does not appear

to be any instance in Govrin that describes assigning at least two syntactical roles (*e.g.*, a subject AND an object) to the same word. Thus, claims 2, 26, and 27, and hence dependent claims 3-13, 15-25, 28-38, 40-49, and 95-106, at least by virtue of their dependencies, are not taught, suggested, or motivated by Govrin. Therefore, claims 2-13, 15-38, 40-49, and 95-106 are not anticipated or obvious in view of Govrin.

In addition, the Examiner cites to Govrin to reject claims 89, and 93-94 stating essentially that Govrin teaches all of the acts of the claims including "decomposing the object ...." Each of the independent claims 89, 93, and amended claim 94 includes language that recites that the claims are directed to objects that are "other than a text-only document." However, there is nothing in Govrin that teaches anything about analyzing objects that are not text documents.

Rather, the Examiner appears to be ignoring language in claim 89 that recites "the object being *other than a text-only document* and having a plurality of units that are specified according to an *object-specific grammar*" (emphasis added). Since the first recited act in the claim refers to "decomposing **the** object," the Examiner is not free to simply ignore the language that defines the antecedent basis object that is described in the preamble of claim 89 (emphasis added). As the Examiner is presumably aware, one cannot ignore language in the preamble just because it appears there. When the body of the claim directly refers to a phrase in the preamble for its antecedent basis, then, generally, that phrase is included in the claim if it breathes "life, meaning, and vitality" into the claim. [See, MPEP §2111.02, *Catalina Marketing Int'l v Coolsavings.com*, 289 F.3d 801 (Fed. Cir. 2002).] Claim 93, which refers to a memory medium containing instructions for controlling a computer processor by similar acts is analyzed similarly. Also, the query engine of claim 94 (as amended to fix a typographical error) recites a "decomposition processor that is structured to decompose **the** object to generate a parse structure." Accordingly, claims 89, 93, and 94, and dependent claims 90-93 (at least by virtue of their dependencies) are not taught, suggested, or motivated by Govrin. Thus, claims 89-94 are not anticipated or obvious in view of Govrin.

Note as well, that the Examiner rejects several of the dependent claims (namely, 3-12, 25, 28-37, 49, and 90-92) as obvious over Govrin. In many instances, the Examiner "takes

Official Notice" stating that, because the particular features of a claim are known in the art, they are therefore obvious to combine as enhancements to Govrin's disclosure. However, this reasoning is fallible and the Examiner has failed to meet his *prima facie* burden – just because something is known, does not make it suggested or obvious to combine with a reference or that one of ordinary skill in the art would know how to combine such a feature with Govrin. In the interests of expediting prosecution, each argument is not separately addressed herein; however, applicants wish to note for the record that they disagree with all of these supposed Official Notice arguments. For example, heuristics may be know in the art for some purposes, but not for all. Also, one should note well that latent semantic regression techniques are not the same as latent semantic analysis as asserted by the Examiner (see Office Action, page 13; U.S. Patent No. 6,757,646, filed as U.S. Application No. 09/962,798).

35 U.S.C. § 102 and 103 Rejections under Ho

The Examiner has rejected 81-83 and 85-88 under 35 U.S.C. § 102(b) as being anticipated by Ho ("Ho"), U.S. Patent No. 5,884,302. In addition, he has rejected claim 84 under 35 U.S.C. § 103(a) as rendered obvious over Ho.

Applicants respectfully traverse these rejection for several reasons.

The Examiner appears to assert that Ho's descriptions of look up (preexisting) tables for analyzing questions against a database somehow corresponds to the claimed grammatical role related storage aspects of the above-rejected claims. However, Ho is directed to an entirely different area of natural language parsing – namely, it describes the analysis and heuristics of parsing questions using a context-free grammar against a preexisting database (stored as the set of tables to which the Examiner refers) to find information related to (pre-existing) topics. The use of a context-free grammar in analyzing questions is directly contrary to and thus teaches away from applicants' determining the meaning of a query based upon context – the notion of storing the relationships defined by associating grammatical roles with meaningful terms as recited by applicants' claims 81-88. In fact, Ho describes this contrast as,

> A grammatically-context-free question is a question whose grammar does not
> depend on the context. Each word in the question has its own grammatical

meaning, and does not need other words to define its grammatical meaning. Hence, the grammatical structure of the question does not depend on its context.

[Ho, col 3: lines 48-53.]

Applicants independent claims 81, 85, and 86, before and after amendment, each recite "storing a normalized data structure" by "stor[ing] set[s] of grammatical relationships between a plurality of meaningful terms based upon the determined *grammatical role* of each meaningful term *relative to a meaningful term that is being used as a governing verb*" (emphasis added). Thus, the data structure defined in each of claims 81, 85, and 86 (and claims 81-83 and 87-88 by virtue of their dependencies) stores context. The analysis described in Ho using a context-free grammar relates to parsing a question to automatically generate (*i.e.*, substitute for programmatic, *e.g.*, SQL) queries against a pre-existing database. It has nothing to do with storing relationships between a governing verb and other terms in a sentence. Note as well that these claims refer to a "normalized data structure" that represents "at least one sentence of a document or a query." Thus, applicants' techniques are usable for both indexing documents and/or for matching a query. In contrast, the storage (database) tables of Ho are pre-existing and are not used to index documents. Thus, claims 81-83 and 85-88 are not anticipated or rendered obvious by Ho.

With respect specifically to the Examiner's rejection of claim 84 as obvious, the structured data that is manipulated by a computer processor contains at least "a preposition table having a set of meaningful term groups, each ... associated with a grammatical role of a verb..." The Examiner correctly admits that Ho fails to teach, suggest, or motivate such a table. However, the Examiner proceeds to take "Official Notice that storing prepositions with their relations is well known in the art." Applicants do not agree and respectfully request the Examiner to meet his *prima facie* burden by showing an example of where this claimed feature appears in the art. Further, even if one were to assume for the sake of argument that such a feature is known, the Examiner needs to show where a suggestion can be found to modify Ho to incorporate such a feature. From applicants' perspective, there is nothing in Ho to suggest that the storage of sets prepositions relative to each verb would be useful to achieve any of the objectives of Ho. It is not clear how the Examiner's stated motive to "allow quicker reference of

the verb and verb modifier" has any relevance to Ho. Thus, claim 84 is not rendered obvious by Ho.

New Claims

New claims 119-141 have been added.

Claims 119-121, 138, and 141 recite additional embodiments described in the specification as filed relating to the use of wildcards. Please see, for example, Figures 10 and 13 of the specification as filed, Appendix A, and the accompanying descriptions thereof. None of the prior art references known to applicants address the use of wildcards in specifying such queries. Thus, applicants submit that claims 119-121, 138, and 141 are not anticipated nor rendered obvious.

Claims 122-137 and 139-140 are dependencies of their respective computer-readable memory medium claim 26 similar to claims 3-13 and 15-25 that depend from claim 2. Therefore, for at least the same reasons as discussed above with reference to claims 2, new claims 122-137 and 139-140 are not anticipated or rendered obvious by Govrin.

Closing

In the event the Examiner disagrees with applicants or finds minor informalities, applicants respectfully request a telephone interview to discuss the Examiner's issues and to expeditiously resolve prosecution of this application. Accompanying this Amendment is an Applicant Initiated Telephone Interview Request in the event the Examiner does not agree that the claims are allowable over the cited references. Applicants' representative can be contacted at (206) 622-4900.

In closing, applicants respectfully submit that all of the pending claims are allowable and respectfully request the Examiner to enter these amendments and to reconsider this application and its timely allowance. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Again, applicants' representative thanks the Examiner for his prompt and courteous attention.

Respectfully submitted,

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Enclosures:
    Postcard
    Copy of PTO-1449 filed on 9/3/03
    Supplemental Information Disclosure Statement Transmittal
    Information Disclosure Statement
    Cited References (3)
    Applicant Initiated Interview Request Form

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